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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In re the Application of

Sven KORNFÄLT

Serial No.: 08/817,391

Filed: April 25, 1997

On Appeal from:

Group Art Unit: 1732

Examiner: K. Jones

For: PROCESS FOR THE PRODUCTION OF A FLOOR STRIP

APPEAL BRIEF

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1. Real Party in Interest

The real party in interest is the assignee of the inventors, Perstorp AB, a company of Sweden, having a principal address of S - 284 80 Perstorp, Sweden.

2. Related Appeals and Interferences

There are no related appeals or interferences known to Appellants, Appellants' legal representative or the assignee, which will directly affect, or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

3. Status of Claims

Claims 3, 4 and 6-14, all the claims remaining pending in the application, stand rejected and are the subject matter of this appeal. Claims 1, 2 and 5 have previously been cancelled.

4. Status of Amendments

The Amendment After Final Rejection filed October 7, 1998, has been entered as noted in the Advisory Action mailed November 23, 1998. By the Examiner Interview Summary mailed December 9, 1998, it was further noted that "all 112 rejections had been overcome by applicant's response (Amendment After Final) dated October 7, 1998."

5. Summary of Invention

The present invention relates to a process for the production of a floor strip and the floor strip so produced, such as a dilation profile, a transition profile or a finishing profile; See, specification, page 1, first paragraph.

With previous known floors made of conventional material, such as wood, stone, tiles, etc., it was known to produce floor strips (for covering a transition such as where a wood floor meets a

tile floor or in doorways between rooms) with metal strips, wood veneer coated strips and strips of homogenous wood; See, page 1, second full paragraph.

However, in recent years, a new material for flooring has been produced, which is hereinafter referred to as a "thermosetting laminate." A thermosetting laminate is typically formed of a paper material, impregnated with a resin, particularly a thermosetting resin, and further contains a plurality of small, hard particles to impart abrasion resistance to the resulting thermosetting laminate. Such thermosetting laminates have become very popular in the United States in recent years and can be provided with patterns, such as wood patterns, marble patterns, and fantasy patterns finding use in residential, office and commercial environments. It is with these types of thermosetting laminate floors to which the floor strips of the present invention are directed; See, page 1, third full paragraph of the specification.

Thus, it was a purpose of the present invention to provide a floor strip with improved abrasion resistance, which could be used with these floors of thermosetting laminate.

According to the present invention, it has quite surprisingly been found to meet the above needs and provide a process for the production of, and the resulting floor strips, such as a dilation profile, a transition profile or a finishing profile, which process comprises gluing, preferably under heat and pressure, a thin decorative thermosetting laminate of postforming quality, having a high abrasion resistance (typically measured in the industry as "IP-value" greater than 3,000 revolutions, preferably greater than 6,000 revolutions) on a longitudinal carrier. The longitudinal carrier comprises a fiber board or a particle board with a rectangular cross section and at least two opposite rounded-off edges. The postforming laminate is glued in one piece on the upper side and the two long sides of the carrier via the rounded-off edges, whereupon one or more floor profiles having the

same or different cross-section is machined from the laminate coated carrier; See, specification, page 1, fifth full paragraph. The resulting floor strips have never been known in the industry and it would not have been obvious to provide a floor strip having the same or similar pattern and abrasion resistance as the new thermosetting laminate floors prior to applicant's invention. For the testing standards of the so-called "IP-value" see the first full paragraph on page 3 of the specification and for the production of laminate clad profiles having the same surface pattern with about the same abrasion resistance as the thermosetting laminate floorings that they are intended to go together with; See, page 3, third full paragraph of the specification.

6. Issues

The sole issue presented to the Board for their decision is whether the examiner erred in finally rejecting claims 3, 4 and 6-14 under 35 USC 103(a) as being unpatentable over Munk et al (U.S. Patent No. 4,594,347) in view of Lindgren et al (U.S. Patent No. 4,940,503).

7. Grouping of Claims

The claims do not stand or fall together but are separately patentable for the reasons set forth in the following "Arguments" section.

8. Arguments

Independent Claim 7

Independent claim 7 on appeal is directed to a process for the production of a floor strip, which process comprises gluing a thin decorative thermosetting laminate of postforming quality, comprising hard particles which impart an abrasion resistance to the laminate, measured as IP-value greater than 3,000 revolutions, on a longitudinal carrier. The carrier comprises at least one member selected from the group consisting of fiber board and particle board and has a rectangular cross-

section and at least two opposite rounded-off edges. The laminate is glued on an upper side and on two long sides of such carrier. After such gluing step, the laminate-coated carrier is machined into one or more floor profiles, which may be of the same or different cross-section. Such profiles are selected from the group consisting of dilation profiles, transition profiles and finishing profiles to produce a floor strip.

Claim 3 adds the additional limitation that the postforming laminate comprises at least one monochromatic or patterned paper sheet, impregnated with a thermosetting resin.

Claim 4 adds the additional limitation that the postforming laminate includes at least one uppermost transparent sheet impregnated with a thermosetting resin.

Claim 6 adds the limitation that the long sides of the veneer (as well as the top thereof) have an abrasion resistance (IP-value) of 3000 to 20000 revolutions (Claim 12 further limits this range to 3000 to 10000 revolutions).

Claim 8 provides the additional limitation that the carrier is a water-resistant carrier.

Claim 13 sets forth that the average particle size of the hard particles is about 5-60 μm.

Claim 14 is directed to the product produced by the process of claim 7.

In the Final Rejection, the examiner characterizes the Munk et al disclosure as directed to a method of hot pressing a synthetic-resin laminate onto a hot-pressed fiberboard intermediate body. Munk et al is also conceded to not explicitly disclose that the laminate has an IP-value in the range claimed. Applicants do point out that Munk et al contains no mention whatsoever of incorporating hard particles to impart a high abrasion resistance to his laminate material.

However, even more importantly, Munk et al do not glue the laminate to the top and both long sides of the carrier nor do they subsequently machine any type of profile from the laminate being produced.

In fact, the thrust of the Munk et al disclosure is limited to a dual pressing step, wherein a preformed body is hot-pressed in two stages; See, column 2, lines 14-15.

In the first stage, a preformed body is hot-pressed into an intermediate body having a volume smaller than the volume of the preformed body; See, column 2, lines 15-17. The hot-press is then opened and a skin (foil) is applied to the top surface of this intermediate body and, thereafter, the skin (foil) and the body are hot-pressed together into a final integrated body which has a volume still smaller than that of the intermediate body; See, Munk et al, Figs. 3-4 and column 2, lines 18-22.

By this process, Munk et al produced a final "extremely rigid and compact body"; See, column 2, line 24.

The examiner concedes that Munk et al is not directed to manufacturing any profiles at all and certainly not any flooring strips. Munk et al's disclosure does not even hint at being abrasion resistant and the specification is silent as to inclusion of any hard particles to impart such abrasion resistance. Lastly, it is clear from column 2, line 24, that Munk et al is striving to produce the final finished shape by this dual pressing process and, thus, there would have been no reason to add a machining step to the process of Munk to change the product from the "as molded" shape.

The secondary reference to Lindgren et al is assigned to the same assignee as is the present application. Moreover, the Lindgren et al patent is the patent which formed the basis for the thermosetting laminate flooring industry mentioned in the opening paragraphs of the specification. While the Lindgren et al patent was the first to uniformly coat small hard particles onto a paper sheet

wet with resin to achieve a high abrasion resistance in a resulting laminate, it in no way contemplated the manufacture of flooring strips having a high abrasion resistance nor any profiled shape in which a laminate is postformed on a carrier both on the top theeof and on the long sides thereof as claimed. Certainly, there is no disclosure of "machining" the resulting laminate of high abrasion resistance into floor strips. Thus, as conceded by the examiner and as pointed out above, neither Munk et al nor Lindgren suggest machining any profiles to provide floor strips having a high abrasion resistance.

While the examiner makes the naked allegation that "it would have been obvious to one having ordinary skill in the art at the time of the invention to modify Munk et al's process by machining the pressed board to obtain a given profile" it is reiterated that Munk et al (or Lindgren et al) does not even make the composite of a laminate formed on the top and long sides of a carrier, as claimed. And, as floor strips of high abrasion resistance were not known (claim 14) prior to the instant disclosure, where is the motivation provided to one skilled in the art to impel him to do what applicant has done, i.e. to produce a laminate of high abrasion resistance and then subsequently machine it into a floor strip profile? Applicant respectfully submits that the absence of the disclosure of claim 14, directed to a floor strip profile of high abrasion resistance, would not have made it obvious to one skilled in the art to produce the process of claim 7. Absent that disclosure contained in appellant's specification to produce such a floor strip, it would further not have been obvious to modify Munk et al, even in view of Lindgren et al, to produce the claimed floor strip, nor to suggest the specific series of manipulative steps recited in independent claim 7.

The Final Rejection is also silent of the limitations of claim 8, i.e. that the carrier is a water resistant carrier. This is important because a floor strip is normally placed above a floor, i.e. is

exposed to routine maintenance, such as washing fluids and similar aqueous solutions to clean floors. Thus, in the present instance, the carrier would be exposed to such washing or other aqueous fluids and, if not formed of a water resistant material, might tend to swell and deform upon contact with routine cleaning fluids. Claims 9, 11 and 13 "wrap" the side of the carrier with various materials, which are not taught in the references nor suggested by the combination thereof.

Laminates such as Munk et al or Lindgren et al would have the laminate surface facing upward, thereby preventing contact of such fluids with an underlying substrate or carrier. Thus, it would not have been obvious, absent the suggestion provided by applicant's disclosure, to provide a water resistant carrier as specifically recited in claim 8 from the combination of references relied upon in the Final Rejection. Accordingly, claim 8 should be allowable independent of the allowability of the claim from which it depends.

Claim 9 recites that the thin decorative thermosetting laminate of postforming quality is comprised of at least one paper sheet impregnated with thermosetting resin and at least the uppermost sheet of which is coated with hard particles. When glued on the carrier, such hard particles cover not only the top but also the two long sides of the carrier. The Munk et al reference does not contain any paper sheet impregnated with thermosetting resin and containing a coating of hard particles. Moreover, Munk et al do no cover the sides of his fiber board. As noted by Munk et al, at column 1, lines 51-52, the skin is normally formed of two foils, the under or decorative foil being a simple paper or a synthetic-resin sheet bearing the desired pattern. As shown in the drawings of Munk et al, and as described at column 3, lines 31, *et seq.*, Fig. 3 shows a pattern foil F_1 and a transparent color foil F_2 positioned on top of workpiece W'. There is no teaching in Munk et al that these foils F_1 or F_2 are formed around the rounded edges of workpiece W' so as to cover the long

sides of the workpiece. The fact that the workpiece (fibrous wood chips) W′ has rounded edges does not mean that the foils F_1 and F_2 are glued on an upper side and on the two long sides of the carrier via the rounded-off edges" (as specifically recited in independent claim 7) nor would there be any hard particles on the long sides of the carrier as recited by the steps of claim 9. Thus, none of the combinations of individual features in Munk et al and Lindgren et al would teach or make obvious the claimed invention of claims 7 or 9.

Claim 3 also "wraps" the monochromatic or patterned paper sheet about the long sides of the carrier (as well as on the top thereof). These limitations are nowhere addressed in the Final Rejection and define unobvious manipulative steps patentable over the combination of cited prior art.

Claim 4 also "wraps" a transparent paper sheet over the long sides of the carrier (as well as the top thereof) which is not even hinted at in the Munk et al and Lindgren et al disclosures.

Claim 6 provides IP-values of 3000 to 20000 revolutions on the side of the carrier (as well as the top) which was unknown prior to the instant invention and neither taught nor suggested by Munk et al in combination with Lindgren et al (Claim 12 further limits this range to 3000-10000 revolutions which is also not suggested by the proposed combination of references).

Claim 11 provides a melamine-formaldehyde resin on the long sides of the carrier (as well as the top thereof, further waterproofing and protecting the sides of the carrier and any profiles (floor strips) machined therefrom. Such is neither taught nor suggested by the references or any combination thereof.

Claims 13 provides a specific range of hard particles on the sides of the carrier, which step is not taught nor suggested in the cited prior art. Such hard particles impart abrasion resistance to the floor strips thereby improving their utility over profiles not having sides which are protected.

Each of these dependent claims contains limitations imparting patentability independent of the patentability of the claims upon which they depend.

Floor strips which extend above a floor are subject to abrasion/impact by foot traffic and other impacts. Resin coatings and/or hard particles protect such strips including the sides thereof and there are no counterparts to such protection found in the cited or known prior art. Thus, the invention, taken as a whole, would not have been obvious to the ordinary worker skilled in the art.

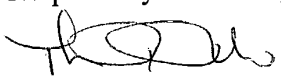
9. Conclusion

For the foregoing reasons, applicants respectfully submit that the Final Rejection is in error and reversal of the rejection by this Honorable Board is respectfully requested.

10. Appendix

A correct copy of the claims on appeal is found in the appendix.

Respectfully submitted,



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STEVENS DAVIS MILLER & MOSHER, L.L.P.

APPENDIX

5. Process according to claim 1, wherein the postforming laminate comprises at least one monochromatic or patterned paper sheet impregnated with a thermosetting resin, and one or more sheets comprising parchment, vulcanized fibers or glass fibers which are not impregnated with a thermosetting resin.

6. Processing according to claim 1, wherein the postforming laminate includes at least one uppermost transparent paper sheet, overlay of α-cellulose impregnated with a thermosetting resin.

7. Process according to claim 1, wherein the IP-value lies within the interval 3000-20000 revolutions.

8. A process for the production of a floor strip, said process comprising gluing a thin decorative thermosetting laminate of postforming quality comprising hard particles which impart an abrasion resistance to the laminate, measured as IP value > 3,000 revolutions, on a longitudinal carrier, which carrier consists of at least one member selected from the group consisting of a fiber board and a particle board, said carrier having a rectangular cross-section and at least two opposite rounded-off edges, wherein, in said gluing step, the thermosetting laminate of postforming quality in one piece is glued on an upper side and on two long sides of the carrier via the rounded-off edges to form a laminate coated carrier, and subsequently machining said laminate coated carrier into one or more floor profiles, which may be the same or different cross-section, said profiles being selected from the group consisting of dilation profile, transition profile and finishing profile, from the laminate coated carrier to produce a floor strip.

9. The processing according to claim 1 comprising providing a water resistant carrier as the carrier.

6 9. The process according to claim 7 wherein the thin decorative thermosetting laminate of postforming quality comprises at least one paper sheet impregnated with a thermosetting resin and at least the upper most sheet of said thin decorative thermosetting laminate being coated with hard particles selected from the group consisting of silica, aluminum oxide, silicon carbide and combinations thereof, having an average particle size of 1-80 μm, evenly distributed over the surface of the paper sheet.

7 10. Process according to claim 1, wherein the glueing step is carried out under heat and pressure.

8 11. Process according to claim 3, wherein the overlay is impregnated with melamine-formaldehyde resin.

9 12. Process according to claim 4, wherein the IP-value lies within the interval 3000-10000 revolutions.

10 13. Process according to claim 6, wherein the average particle size is about 5-60 μm.

11 14. The product produced by the process of claim 1.